CLAIMS:

1. A method for detecting the presence or absence of twelve mutations in the cystic fibrosis transmembrane conductor regulator (CFTR) gene, which method comprises contacting sample genomic DNA from an individual in two separate reaction vessels with allele specific primer sets for (A) 1717-1 G>A, G542X, W1282X, N1303K, ΔF508(M), 3849+10kb C>T mutations and (B) the 621+1 G>T, R553X, G551D, R117H, R1162X and R334W mutations respectively, in the presence of appropriate nucleotide triphosphates and an agent for polymerisation, such that each diagnostic primer is extended only when the relevant mutation is present in the sample; and detecting the presence or absence of CFTR gene alleles by reference to the presence or absence of diagnostic primer extension product(s).

2. A method as claimed in claim 1 and wherein one or more diagnostic primers is used with one or more amplification primers in one or more cycles of PCR amplification.

3. A set of allele specific primers for each of the following alleles of the CFTR gene: 1717-1 G>A, G542X, W1282X, N1303K, ΔF508(M), and 3849+10kb C>T ~~mutations~~ mutations.

4. A set of primers as claimed in claim 3 and comprising the following diagnostic primer sequences:

TCTTGGGATTCAATAAGTTTGCAACAGTCA
TACTAAAAGTGAGTCTCTAATTTTCTATTTTTGGTAATTA
AGTTTGCAGAGAAAGACAATATAGTTCTCT
TGATCACTCCACTGTTCATAGGGATCCATC
GTATCTATATTCATCATAGGAAACACCATT
ACATTTCCTTTCAGGGTGTCTGACTAA

5. A set of allele specific primers for each of the following alleles of the CFTR gene: 621+1 G>T, R553X, G551D, R117H, R1162X and R334W ~~mutations~~ mutations.

6. A set of primers as claimed in claim 5 and comprising the following diagnostic primer sequences:

GTATCTATATTCATCATAGGAAACACCACA
TGCCATGGGGCCTGTGCAAGGAAGTATTGA
AGCCTATGCCTAGATAAATCGCGATAGACT
CCTATGCACTAATCAAAGGAATCATCCTGT
GCTAAAGAAATTCTTGCTCGTTGTT
GACTGACTGACTGACTGACTCTGACTGACTTATTCA
CCTTGCTAAAGAAATTCTTGCTGA
TATTTTTATTTCAGATGCGATCTGTGAGTT

7. A set of primers comprising the following diagnostic primer and amplification primer sequences:

TCTTGGGATTCAATAACTTTGCAACAGTCA
GAATTCCCAAACTTTTAGAGACATC
TACTAAAAGTGACTCTCTAATTTTCTATTTTTGGTAATTA
AGTTTGCAGAGAAAGACAATATAGTTCTCT
TAATCTCTACCAAATCTGGATACTATACC
TGATCACTCCACTGTTCATAGGGATCCATC
AATTTGAGAGAACTTGATGGTAAGTACA
GTATCTATATTCATCATAGGAAACACCATT
CCAGACTTCACTTCTAATGATGATTATGGG
ACATTTCCTTTCAGGGTGTCTGACTAA
TTGTGGATCAAATTTCAGTTGACTTGTCATC

8. A set of primers comprising the following diagnostic primer and amplification primer sequences:

GTATCTATATTCATCATAGGAAACACCACA
GACTTCACTTCTAATGATGATTATGGGAGA
TGCCATGGGGCCTGTGCAAGGAAGTATTGA
AGCCTATGCCTAGATAAATCGCGATAGACT
GTTTCACATAGTGTATGACCCTCTATATACACTCATT
CCTATGCACTAATCAAAGGAATCATCCTGT
TTTGTTTATTGCTCCAAGAGAGTCATACCA
GCTAAAGAAATTCTTGCTCGTTGTT
GACTGACTGACTGACTGACTCTGACTGACTTATTCA

CCTTGCTAAAGAAATTCTTGCTGA
TAAAATTGGAGCAATGTTGTTTTTGACC
TATTTTTATTTCAGATGCGATCTGTGAGTT
TTTTGCTGTGAGATCTTTGACAGTCATTT

9. A set of primers as claimed in any one of the previous claims and comprising one or more of the following control primers:

GAGCACAGTACGAAAAACCACCT
AAACTTTTACAGGGATGGAGAACG
AGAGGATTATCTATGCAAATCCTTGTAACC
TCAACTTCACTATCAAAAGTCATCATCTAG

10. A diagnostic kit for detecting the presence or absence of twelve mutations in the cystic fibrosis transmembrane conductor regulator (CFTR) gene which comprises sets of primers as claimed in any ~~of the previous claims~~.